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ABSTRACT

This guide, one of a series in the Quinmester Program, is intended to aid teachers in grades 10 through 12 as they prepare instructional programs dealing with current environmental crisis issues. The aim of this course of study is to help students understand political and economic ramifications of environmental problems and to motivate and provide them with the tools and the desire to become effective consumers and citizens. The guide is divided into: 1) a broad goals section; 2) a course content section which outlines units on ecological principles, environmental problems, economics of pollution, government and pollution, industry and pollution, pollution control, individual action, and future implications of environmental policy; 3) a learning activities section providing a picture of the main idea and specific behavioral objectives for a given set of learning activities; and, 4) a materials section. Appendix I consists of President Nixon's 1970 message on the environment; Appendix II enumerates environmental organizations. Related documents are SO 002 709 through SO 002 718. (Author/SJM)

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AUTHORIZED COURSE OF INSTRUCTION FOR THE QUINMESTER PROGRAM

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Social Studies: ECO - POLITICS 6448.09

DADE COUNTY PUBLIC SCHOOLS

DIVISION OF INSTRUCTION • 1971

ECO - POLITICS

6448.09

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for the

Division of Instruction
Dade County Public Schools
Miami, Florida
1971

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INTRODUCTION

This course of study was written as part of a total effort to revise curriculum to fit the quinmester administrative organization of schools. The materials and information in this guide are meant to be neither all-inclusive nor prescriptive; but rather, an aide to teachers as they plan instructional programs, taking into account student needs and characteristics, available resources, and other factors.

The major intent of this publication is to provide a broad framework of goals and objectives, content, teaching strategies, class activities, and materials all related to a described course of study. Teachers may then accept the model framework in total or draw ideas from it to incorporate into their lessons.

The guide is divided into 1) a broad goals section, 2) a content outline, 3) objectives and learning activities, and 4) materials. The first section provides descriptive and goal-oriented information for the teacher; "indicators of success" refers to suggested prerequisite or corequisite experiences. The content outline illustrates, in general terms, the scope and major subdivisions of the course. The objectives and learning activities section, hopefully, provides a total picture of the concept or main idea and specific behavioral objectives for a set of given learning activities. The materials section of the guide lists resources in four categories: essential textural or other material; alternate classroom materials to use in place of or in addition to the aforementioned; supplementary teacher resources; and supplementary student resources. The appendix may include other material appropriate for a specific course: e.g., pretests, readings, vocabulary, etc.

Anyone having recommendations relating to this publication is urged to write them down and send to: Social Studies Office, Room 306, Lindsey Hopkins, A-1.

James A. Fleming
Social Studies Consultant

COURSE DESCRIPTION: A STUDY OF CURRENT ISSUES CONCERNING THE ENVIRONMENTAL CRISIS, FOCUSING ON THE POLITICAL AND ECONOMIC FACTORS THAT INFLUENCE POLICY AND PRACTICE.

CLUSTER: Political and Economic Studies
GRADE LEVEL: 10-12
COURSE STATUS: Elective
INDICATORS OF SUCCESS: It is recommended that students entering this class have experience in at least one course in American Government and one in ecology. This may have been done satisfactorily in junior high.

COURSE RATIONALE: The improvement of life on this planet depends upon the concerned citizens who must take action based on rational thinking. It is important for pupils to understand the political and economic ramifications of environmental problems. The principal aim of this course is to provide students with the tools and the desire to become more effective comsumers and citizens.

COURSE GOALS: THE STUDENT WILL:

1. DESCRIBE AN EXAMPLE OF AN ECO-POLITICAL ISSUE.
2. EXPLAIN MAN'S RELATIONSHIP TO THE ECOSYSTEM.
3. SUGGEST IMPLICATIONS OF POPULATION GROWTH FOR THE FUTURE OF MAN.
4. APPLY KNOWLEDGE OF SUSTAINED YIELD AND RECYCLING TO THE PROBLEMS OF THE ENVIRONMENT.
5. LIST AND DESCRIBE SEVERAL KINDS OF POLLUTION.
6. RELATE ECONOMICS AND POLLUTION.
7. LIST AND DIFFERENTIATE AMONG THE VARIOUS METHODS OF CONTROLLING POLLUTION.
8. EXPLAIN THE ROLE OF THE FEDERAL GOVERNMENT IN ENVIRONMENTAL CONTROL.
9. ANALYZE AN ECO-POLITICAL ISSUE, TAKING INTO ACCOUNT THE SOCIAL, ECONOMIC, BIOLOGICAL, AND POLITICAL FACTORS.
10. DEMONSTRATE A WILLINGNESS TO ACTIVELY PARTICIPATE IN AN ECO-POLITICAL ISSUE.
11. EVALUATE THE FUTURE IMPLICATIONS OF ENVIRONMENTAL POLICY AND PRACTICES.
12. SUGGEST CHANGES THAT ARE NEEDED IN OUR PRIORITIES IN ORDER TO DEAL WITH ENVIRONMENTAL PROBLEMS.

COURSE CONTENT OUTLINE:

I. Review of ecological principles

A. Requirements for Life
B. Interrelationships
C. Role of man

II. Environmental Problems

A. Pollution

1. Air
   a. Gaseous
   b. Particulate
2. Water
   a. Chemical
   b. Thermal
3. Solid wastes
4. Noise

B. Population
C. Depletion of resources

III. Economics of Pollution

A. Modified market economy
B. Costs of pollution
C. Concept of growth

IV. Government and pollution

A. Review of American government
B. Role of the federal government
   1. Evolution of ecological policy
   2. Philosophy of government toward environment
   3. Existing programs
C. State and local governments' roles

V. Industry and pollution

A. The role of technology
B. Sources of pollution
C. Industry and government
D. Industry and society

VI. Methods of pollution control

A. Persuasion
B. Legal means
C. Economic means
   1. Incentives
   2. Punitive measures
D. Legislative means

VII. Individual action

A. Organizations
B. Writing letters, contacting appropriate decision-makers
C. Individual commitment
D. School action

VIII. The Future

A. Implications for society
B. What should be done
C. Predicting the future

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
ECO-POLITICS	A. The student will describe an example of an eco-political issue.	1. On the first day have the students recall definitions for "ecology" and "politics". From this information develop a definition of "eco-politics". 2. In order to evaluate (subjectively) the substantive knowledge of the class, ask students to suggest current political issues having to do with ecology. List these on the board and have students (in writing or discussion) describe the issues in scientific and political terms. Example: A student suggests the Florida-State Barge Canal. Questions for discussion: What is (was) its purpose? Why is this an ecological problem? a Destroys natural resources b. Destroys beauty c. Affects fishing, recreation d. Might inhibit flow of water from North to South Florida, lowering water table, leading to water pollution, salt intrusion, lack of water for human needs. e. Might hurt tourist attractions: Silver Springs Why is this political? a. Pork Barrel Florida legislators push it b. Required political action to halt it c. Tax money supports it Other possible issues: SST, Jetport, oil slicks, DDT, Alaska oil pipeline, whales, alligators, "Old Smoky" (incinerators), sewage disposal problems, garbage collection, SAGA development corporation, Biscayne National Monument...actually, any issue affecting consumers, health, etc. becomes ecological depending on one's definition. This may cause you to re-define eco-politics.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
ECOLOGY Note: The length of time allotted for the basic concepts of ecology, pollution, economics and government depends on the prior experiences of the students. If they demonstrate knowledge in these areas to the satisfaction of the teacher, the time spent on those objectives should be kept to a minimum and more time allowed for investigation of the political issues in the latter part of the course.	A. The student will explain man's relationship to the eco-system.	3. Show filmstrip, The Politics of Pollution. (Presently in production at the Department of Educational Media, Dade County Schools). 1. Define terms: environment — trophic level — biomass ecosystem — geometric growth community — arithmetic growth food web — water cycle primary producer — carbon cycle 2. Review the factors necessary for sustaining life. Discuss the need for and role of (a) air (b) water (c) sunlight (d) minerals. 3. On the chalk board diagram a community of organisms in a fresh water pond and illustrate the food web, using arrows. 4. Divide the class into four groups and have each group illustrate a different ecosystem (plains, fresh water pond, forest, ocean, estuary, etc.) Have each group identify the organisms as (a) primary producer (b) herbivore (c) carnivore (d) secondary carnivore. Each group report back to the total group. Allow others to suggest additions or corrections. Question: What would happen if (x) were eliminated? (Elicit the concept of equilibrium.) 5. Make a bulletin board display of an ecosystem, using pictures or drawings of the organisms. 6. Discussion: a. Have students make a generalization about the relative numbers of organisms at each tropical level. (numbers decrease as levels increase.)

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		b. How can this be explained? (Energy is lost during transfer, some consumed at each level, some unused.) c. Some scientists say man should be a vegetarian? Why? (Teacher might write on board: It takes 10 lbs. of grass to = 1 lb. of cow, and 10 lbs. of cow to make 1 lb. of man. Have the class infer that for the sake of efficiency, if man were vegetarian, it would only take 10 lbs. of grass to = 1 lb. of man instead of the 100 lbs. it took via the carnivorous route.) d. Introduce the term "pyramid of biomass." Question: What organism is at the top of this pyramid? 7. See who can list the most ways that man uses other animals (in 3 or 5 minutes). Have students who made the longest lists write them on the board; classify their list according to use, e.g., categories of food, shelter, recreation, tools, protection, aesthetics, etc. From this the class should make a generalization about man's dependence.
	B. The student will suggest implications of population growth for the future of man.	1. Refer to a graph of population growth (Best put on an overhead transparency). (Reference: Environment Crisis, p. 6) Discussion: a. Differentiate between arithmetic and geometric growth. b. Ask students to interpret the graph. c. What are the implications of continued population growth for the world (food supply, space, resources, aesthetic factors, etc.) 2. Assign readings on population ecology for discussion or reports. a. Environment Crisis, p. 6-9.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		b. The Population Bomb: "Too many People" p 17-35 (paperback edition) c. Environment Handbook, p. 219-232. d. The Ecology Controversy, McCuen, p. 1-19. (Selected readings from different viewpoints) Suggested discussion questions: a. What are the authors saying? b. Why is population part of a study of ecology? c. How might population growth affect the environment? d. How might population growth affect the chances for war? e. What, if anything, should be done about population growth? Can you foresee political obstacles to your proposals? 3. Discuss the statement: "As populations increase and/or resource supplies decrease, the freedom of the individual to use the resources as he wishes decreases irrespective of the form of government.
	C. The student will apply knowledge of sustained yield and recycling to problems of the environment.	1. Use the list below or have students suggest a list of natural resources to include minerals, endangered species, extinct species. Have students classify them according to renewable and non-renewable resources. eagle, gold, whales, trees pelican, alligator, iron ore, osprey oil, silver, water, sparrow buffalo, alluminum, lobster, redwood tree 2. Questions for discussion: a. What can be done to be sure the non-renewable resources are not "used up?" Introduce the term "recycle" and have students give examples.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		b. How can we maintain a supply of renewable resources? Introduce the term "sustained yield." c. How can we be sure the eagles, etc. won't disappear? (One way is the setting aside of parks and wilderness areas, though mercury levels in their prey, etc, (cannot be controlled by such methods.) Introduce the term "endangered species list." Have an interested student find out what species are on it. d. What are the advantages (aesthetic, recreational, etc.) and disadvantages (land, minerals, timber, etc.) of setting aside parks? 3. Have students identify National parks and forests in Florida, important wildlife refuges, bird sanctuaries. Have them determine the differences among these, and the resources they aim to protect. 4. Write the Forest Service motto on the board and have students interpret and evaluate it: "The Greatest Good for the Greatest Number in the Long Run." 5. Have students write an essay on the theme, "Spaceship Earth."
POLLUTION	A. The student will list and describe several kinds of pollution.	1. Listen to the record of "Pollution" by Tom Lehrer. A 3 minute film with the record on it is available for free use (see materials section). Question: Who does Lehrer think is responsible for the problem? 2. Discuss the statement: "Everything Pollutes." Set up criteria establishing a definition for pollution. For example, a pollutant is anything that affects other organisms adversely or is destructive of the ecosystem.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		Students should recognize the difference between "natural" and man-made pollutants. Natural pollutants: the waste products of all organisms, evolved slowly, so that other organisms evolved which utilize the wastes. (Animals use the waste product of photosynthesis by plants-oxygen.) In contrast, human pollutants have arisen on a scale thousands of times faster than nature's, so that other organisms can not evolve defenses. 3. Assign readings on pollution: Environmental Crisis, 16-31 or any appropriate textual materials. 4. Have students make a chart of types of pollution--air, water, solid wastes, noise. For each type, designate major pollutants, sources, effect on the environment, and possible means of correction. Example:

	Pollutants	Major Sources	Effect on the Environment	Possible means of correction
Air	a. Carbon monoxide b.	Cars, combustion	Sickness, poison	Replace internal Combustion engine. Regulate ratio of air in fuel in engines.

ECONOMIC GROWTH	The student will relate economics and pollution	1. Readings: Environment Crisis, p. 38-40 An Economics textbook Review the concepts of supply and demand, market economy, profit, etc.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		2. Present students with hypothetical situations, such as the following: Suppose you are on the board of directors of a small chemical plant. You have to keep prices down to compete with other companies. A group of citizens has complained that your wastes are polluting the river. They want you to buy and install equipment to cool the water and purify the wastes. What will <u>you</u> vote to do in response? Why? Possible responses: a. By complying, I (the company) may have to raise prices causing my company to go out of business, having to fire my employees, who are townspeople. b. By my refusing to comply, the river may die; or taxpayers may have to shoulder the costs of solving the problems. c. By installing purifying equipment the company may recover valuable wastes, which it can market at a profit. 3. Ask Question: Why have polluters, generally, been allowed to pollute? (The costs of social, health, and environmental damage have not been included in the economy, traditionally. Resources were thought to be infinite; e.g., pioneers attitude toward the land during the past century.) Have students suggest examples. 4. Debate: Resolved, Industries That Pollute Should Be Closed Down until they Make the Necessary Corrections, to comply with the laws. 5. Have a group of students investigate pollution in the Soviet Union. Periodicals will provide (e.g., <u>Science</u>, October 2, 1970). Others may wish to investigate other countries, e.g., Japan and Western Europe.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		6. Evaluate the effect of our market economy on pollution. From the above report students should recognize that the market economy, as it is known in the United States, is not to blame entirely. They might locate other instances all over the world. Students might make hypotheses about the causes of pollution: e.g., technology; our system of values which defines progress as "more;" corrupt political system, etc. <u>All</u> responses should be accepted and recorded to be evaluated when more evidence has been collected (near the end of the course). 7. Debate: Resolved, technological and economic growth should be reduced through government controls in order to restore the environment. 8. Suggested resources (suitable for student reports). a. Mishan, <u>Technology and Growth: The Price We Pay</u>. b. Dales, <u>Pollution, Property and Prices</u>. c. League of Women Voters, <u>Population + Production=Pollution</u> 9. Show the film, <u>Air, Water and Industry</u>. Discuss the possibilities of industrial action against pollution on a large scale. Questions for discussion: a. Was this film objective? b. Who produced the film? c. Could most industries do this type of thing and keep up their profits? Will they? 10. Have volunteers peruse advertisements in current periodicals (<u>Science, Natural History, Scientific American, Time</u>, <u>Newsweek</u>, etc.) to evaluate industrial attitudes and practices toward pollution. Compile a list of specific companies and actions they have (seemingly) taken to combat pollution. Questions for discussion: a. Is it good business to fight pollution? b. Do industries have a conscience? c. Is our data biased? How might we get more data to test the validity of our answers?

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		Source: Environment Crisis, p. 244-250. 11. Have interested students prepare a panel discussion or reports comparing legitimate efforts by industries to combat pollution with resistance by other industries as charged by the Nader team in the book Vanishing Air. One aim of the discussion might be to detect trends in industrial policy toward pollution. Have students try to discover how much money was spent by selected large companies on pollution control and compare it with the amount spent on advertising about their pollution control efforts.
POLLUTION CONTROL	To list and differentiate among the various methods of controlling pollution	1. Have students read in Environment Crisis, pp. 52-63, and list as many ways to control pollution as they can find in the reading. 2. Divide the class into four groups, and assign each one of the following types of control: fiscal methods, legislative methods, judicial methods, and persuasion. Have each group determine what types of action would be included under its methods; have them further be prepared to describe an example for each one. The following types of action should be expressed in reports: a. Fiscal methods: economic incentives, effluent charges, fines, taxes, grants. b. Legislative methods: setting minimum or maximum standards. c. Judicial methods: civil suits, criminal suits d. Persuasion: appeal to ethics, publicity, boycotts

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		3. Invite a speaker from a local pollution control agency of the government or send a committee of students to interview someone in pollution control activities to find out what methods are used locally to make businesses, industries, and citizens control pollution.
AMERICAN GOVERNMENT	To explain the role of the federal government in environmental control	1. Review as needed: two-party system, federalism, federal agencies, checks and balances, legislative process, powers of the three branches, lobby committee system. Refer to standard government text as necessary. 2. Lecture or have two or three students report to the class on the historical evolution of the role of government in ecology. The report should include reasons for the American tradition of resource exploitation without government restraint, and the major landmarks in 20th century conservation policy. Suggested resource: Current History, "Government's Historical Role in Conservation," by William G. Carleton, June, 1970; Stewart Udall's, Quiet Crisis. 3. Hand out excerpts from President Nixon's Message on the Environment, 1970. (See Appendix I) Identify his specific proposals. Students can find out what has happened to the proposal and a record may be kept for later reference. (Information can be obtained by writing letters to appropriate agencies; checking periodicals; the Congressional Record; writing or calling conservation groups.) Students might do research to find out why the President's recommendations succeded or failed in the legislature. 4. Discuss the merits and problems of President Nixon's plan to re-organize the cabinet and have a separate environmental department.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		5. Have students read in Environment Crisis, p. 113-116. (Outline of environmental responsibilities of major federal agencies) Review the responsibilities of the agencies, their powers, how they relate to the executive and where they overlap. Hand out a list of committees of the Senate and House for student reference if student's do not have this information in a book (Environment Crisis, p. 116.) 6. Investigate existing programs concerned with pollution on the national level. (Reference: Environment Crisis p. 64-78) 7. Have one student report on the "Council on Environmental Quality." (origin, purpose, duties, membership, achievements, and significance) 8. Activities 5, 6, and 7 above might be combined into a class activity using small groups. Each group could be assigned to report back on one of the parts of the environment "power structure." Groups might be divided up into (a) Major federal agencies (b) Legislative committees, (c) Council on Environmental Quality, (d) Current national programs, and (e) Role of the president. 9. Assign individuals or groups of students a current law or bill to research. Reports might include the following: a. Who introduced the bill

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		b. When it was introduced c. What ecological problem it seeks to alleviate d. What methods of control it calls for e. What has happened to it (committee actions, floor action, amendments, etc.) f. Lobbying action taken, by whom, and by what methods. g. Effectiveness (actual, if passed, predicted if still under consideration) h. Reasons for success or failure (hypothesized) 10. Have a student panel discussion on the pros and cons of federal activity in environmental problems. Consider topics which may lead to discussion and/or further research: a. The efficacy of the local, state and federal governments, in theory and in practice. b. The responsiveness of each level of government to local and larger scale issues. c. Influence of lobbyists at each level. d. The need for interstate or regional control of larger problems (If Florida's sewage washed onto Georgia's beaches, would you expect Florida's legislature to impose restrictions? etc.) e. Costs involved. 11. Suggested references: a. League of Women Voters, Who Pays for a Clean Stream? (Roles of industry, local and state governments) b. U.S. Senate committee on Public Work, subcommittee on air and water pollution, Waste Management Research and Environmental Quality Management. (Hearings pro and con federal responsibility) c. "Cleaning Up the National Mess: How Great the Cost? Who will Pay?" Time (Federal Government's expenses) d. Synopsis, Oct. 12, 1970.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
THE POLITICS OF ECOLOGY Note: Issues selected will be based on current relevance and materials will be mainly periodicals. Teacher should review library skills with class and rely greatly on student work outside the normal class routine.	The student will analyze an eco-political issue, taking into account the social, economic, biological, and political factors.	1. Divide the class into 4 or 5 groups to research issues related to the environment. Each group might be asked to construct a flow-chart tracing its ecological issue from discovery to resolution or present status. The chart should include a. Groups and agencies involved b. Nation of involvement (detection, enforcement, adjudication, lobbying, legislation, etc.) c. Time-line of progress d. Negative and Positive influences e. Public reaction 2. Role-playing: Have students assume the roles of lobbyist, legislator, conservationist, citizens' group representative, local official, etc. to present a mock congressional committee meeting. Consider problems such as inadequate budget; public indifference, vested interests. 3. Use simulation games, such as Smog and Dirty Water, which place students in decision-making roles. 4. Have students read "The Economics of Pollution," part III: "Can Pollution Be Controlled?" In Economic Topic Series. Useful discussion questions follow the article. 5. Make an ecological current events bulletin board. 6. Have students find out who heads important congressional committees that deal with environmental issues. (Almanac, Congressional Register, or by writing to "Friends of the Earth"). Have students assess the positions of those men on environmental issues. The teacher can select 4 or 5 recent bills (or some not-so-recent for comparison) on which roll call votes were taken. Have students fill in a chart as they locate information:

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		NAME - PARTY - POSITION - AGE - STATE - PRIOR EMPLOYMENT - EDUCATION BILL X - BILL Y - BILL Z - BILL Q Once complete, class discussion can lead to an evaluation of the men and their positions. Suggested discussion items: a. How might this information be useful to a voter? b. What might account for the inconsistencies in voting patterns (if any occur)? c. Can we make any hypotheses about the men who hold important environmental positions in Congress? d. How would you rate these men in their position? Would you vote for them? (Compare student assessments with those of the "Friends of the Earth" in DeBell, ed. The Voter's Guide to Environmental Politics.) As an alternative, present a chart similar to the one above to the class on an overhead transparency and pursue the discussion. 7. Have students identify prominent federal, state and local officials who are associated with environmental issues. Discuss their voting records, possible motivations, political sacrifices, etc. e.g., Proxmire and the SST, Dick Stone and the Miami River. 8. Film: Progress, Pork-Barrel and Pheasant Feathers. (Should Florida build a canal between the Gulf and the Atlantic?) Rental, $17.50. There is also a Dade County filmstrip in production, 1971. Check with the Department of Media. Have students use periodicals to bring the issue of the barge canal up to date. In class discussion determine (a) if the barge canal is a dead issue, and (b) what methods have been used to resolve the issue to this point.

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		9. Have a speaker from the Dade Pollution Control Office talk about politics and our local environmental problems. 10. Select a local ecological issue for in-depth analysis. The paperback book The Environmental Destruction of South Florida presents an introduction to many of the problems peculiar to this area and would serve as an over-all view of local problems from which to choose an issue to study. Suggested activities: a. Gather data from periodicals, invited speakers, interviews, site visits, community or school polls, visits to a local government meeting or appropriate court visits. b. Use data to determine the causes of the problem; the source and extent of the pollution; the costs of halting or avoiding the pollution and the possible costs of not halting it (preferably from different points of view); possible means to control; the role of government; role of industry; role of citizens; etc. c. Ask students to make judgements about the situation--What should be done and why, who should pay, and who, if anyone should bear blame. d. The class may make recommendations to appropriate agencies suggesting realistic proposals taking the political, economic and ecological worlds into account. e. Have students research possible avenues of citizen action. (Resources: Garrett De Bell's The Voter's Guide to Environmental Politics; League of Women Voters of the U.S. The Big Water Fight: Trials and Triumphs in Citizen Action on Problems of Supply, Pollution, Floods and Planning Across the USA. (Contains chapter on "How to be an Effective Citizen;" Mitchell and Stallings, eds. Ecotactics)

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		11. Have an interested student read and report on "The Politics of Pesticides," by M. Greene in Nation, Nov. 24, 1969.
		12. Distribute copies of Synopsis, Sept. 29, 1969. Several of the articles may be used as discussion springboards. Questions are found in the Teacher's Resource for Synopsis, leading to an analysis of diverse opinions and focusing on the social conflict around environmental issues.
		13. Have artistic students make transparencies of current cartoons and analyze them in class discussion.
		14. Use the case study on the nuclear generating plant, in McCuen's, The Ecology Controversy to study various viewpoints regarding a selected issue. The 3 readings present the dispute between a citizens' group and a power company. The case could be compared to local issues such as Florida Power & Light's plans to build a nuclear generator and the arguments pro and con.
ENVIRONMENTAL ACTION	The student will demonstrate a willingness to actively participate in an eco-political issue.	1. Have interested students write an article for the school newspaper about a local pollution problem, possibly one right in the school.
		2. Have a film-making project on a local pollution problem--or several problems. This may be done in conjunction with the language arts department.
		3. Take a field trip to a Metro or City Commission meeting to argue on behalf of an environmental issue.
		4. Make a large map of Dade County or of your local community for a hall display, Pinpoint pollution with colored tacks or paper flags (one color for smoke, one for water pollution, one for solid waste, noise, etc.). Identify local land use issues, e.g., SAGA, Coco-Plum, etc. Have individuals volunteer to write short reports on each of the pollution problems identified Share the reports in class discussion periods.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES

5. Have students read and discuss appropriate chapters in The Environmental Destruction of South Florida: "Environmental Decision-making," "Political Ecotactics in South Florida," "Individual Action."

6. Distribute handout: Environmental Organizations (see Appendix II).

   a. Write to several of the organizations and request informatic
   b. Join one of the organizations as a class.
   c. As students obtain data about the organizations, compile chart or notebook. Have students suggest questions that should be asked about such organizations by prospectiv members, and record the answers to those questions in the chart or notebook for each one. For Example:

      (1) How many members does it have?
      (2) Who controls it?
      (3) Who can join?
      (4) What is its major purpose?
      (5) How long has it been in operation?
      (6) How is it organized?
      (7) What has it done in the past?
      (8) How much does it cost to join? Are memberships tax-deductible?

   d. Discuss the advantages and disadvantages of working through organizations. Compare the groups for which there is data as to effectiveness, size, purpose, and leadership.

7. Have a speaker from a local civic group visit to tell of problems of effective citizen action, and what his group has done to preserve or improve their community's environment (fighting zoning changes, sewage problems, etc.)

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		8. Start an ecology club in school. 9. Find out current candidates' or officials' voting records. Assess their environmental positions. Interested students could contact qualified candidates and volunteer their assistance. 10. Make a bulletin board display contrasting advertisements for convenience goods with pictures of the environmental pollution caused by their production. For example, include an ad for a car, and next to it put a picture of an "auto-graveyard" or a crowded expressway. Next to an advertisement for oil products, show the results of an oceanic oil spill. 11. Write letters to Congressmen expressing individual views on ecological issues. See Voter's Guide to Environmental Politics, pp. 186-192 for assistance on "How to Write Letters to Congressmen." 12. Make a list of ways an individual can influence the future of the American (or world) environment. Reproduce the composite list from the class and distribute. Poll the class on each item as to whether the individual intends to (a) get actively involved soon (or now), (b) get involved if the occasion arises and it doesn't interfere with his other activities, (c) talk about it, or (d) forget about it, probably. Discuss the results, especially the tendency to set high hopes now but do nothing later. Some students might design a poll to be taken among other students in the school, possibly through the school newspaper. 13. Possible individual activities: instigate legal suits, read current books, write legislators, join organizations, give gifts of membership in environmental organizations, start an aluminum can, glass or paper drive, hold a school anti-litter campaign.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		14. As a class or in small groups, construct an "Environmental Survival Kit." It could be put on display. WTVJ, (316 N. Miami Ave., Miami), offered such a kit in February, 1971, which included such items as do's and don'ts for consumers, pollution complaint cards which could be sent to the county government, lists of products harmful to the environment and those that are least harmful, addresses to which complaints could be sent.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
THE FUTURE	A. The student will evaluate the future implications of environmental policy and practices.	1. Have students read one of the many books or current articles dealing with the future of the environment. (Teacher should check his school library offerrings before assigning this-on establish a classroom paperback "library.") 2. Have students read the chapter on "The Future" in Environment Crisis, pp. 251-259, or a similar section in any appropriate book. 3. Class discussion on these questions: a. Can technology cure the problems of pollution it has helped to create? b. What would be the "best" environmental policy? c. What cost is society willing to pay? d. What do people really want? Are they willing to change their life styles? (e.g., walk instead of ride, use fewer plastics, throwaways, etc.) e. Is ecology just a fad? Are people going to react against it? f. Are politicians sincere in their promises for environment? (How can we find out, test it!) 4. Have students read Reading 13 in The Ecology Controversy by McCuen: "Western culture and the Environment," by L. Gerlach. There are discussion items in the book that lead to generalizations about the nature of western society and its relation to the environment crisis. 5. Have students write essays predicting the future of the environment, defending their positions with evidence from the past and present.

FOCUS	OBJECTIVE	LEARNING ACTIVITIES
		6. Have the class identify a list of problems related to the environment, e.g., population, economic growth, air pollution, etc. Have them arrange them in order of priority; or have them determine which should be dealt with immediately, which requires gradual change, and which are really not problems at all, if any.
	B. The student will suggest changes that are necessary in our priorities in order to deal with environmental problems.	1. Divide the class into small groups. Have each group try to come up with a $300 billion "national budget" including government programs for defense, education, health, urban development, agriculture space and undersea research, transportation, and pollution control. Compare the simulated budgets; compare these to actual figures for the last fiscal year.
		2. Have students write an environmental "Bill of Rights." Compare to Paul Erlich's "Mankind's Inalienable Rights," from The Population Bomb.
		3. Discuss: What reforms are needed, if any, in our institutions to facilitate a better ecological policy? (Possible suggestions, each of which require discussion of advantages as well as disadvantages: do away with seniority system and secret balloting in Congress and committees; raise the environment to cabinet status; stop giving tax deductions for children; 3rd party; liberalize abortion laws; improve citizen education, etc)
		4. Devise an ideal national policy for the environment, including objectives, emforcement, etc. Evaluate the possibilities for such a program to be put into effect in the near future.
		5. Show and discuss filmstrip, Ecology and Values, presently in production by the Department of Media, Dade County Schools.

RESOURCES

I. BASIC TEXTUAL MATERIAL:

Rohrer, Daniel M. et al. The Environment Crisis: A Basic Overview of the Problem of Pollution. Contemporary Issues Series. Skokie: National Textbook Company, 1970 (paper).

II. OTHER SUGGESTED CLASSROOM TEXTUAL MATERIALS (Note: In a current issue-area such as this it is expedient on the part of the teacher that he keep himself aware of the constantly changing and new materials being published.)

DeBell, Garrett, ed. The Voter's Guide to Environmental Politics. New York: Balantine Books, Inc., 1970 (paper).

Joint Council on Economic Education. The Economics of Pollution. Economic Topic Series. 1970 (paper).

Johnson, H. No Deposit-No Return, Man and his Environment A View Toward Survival. Menlo Park: Addison Wesley, 1970 (paper).

McCombs, L. and N. Rosa. Ecology: Life, Struggle, Survival. Menlo Park: Addison Wesley, 1970 (paper).

Curriculum Innovations. Synopsis: The Politics of Pollution. Chicago: Curriculum Innovations, 1:2 (September 29, 1969).

Curriculum Innovations. Synopsis: Ecology-A Study of Social Conflict. Chicago: Curriculum Innovations, 2:3 (October 12, 1970).

McCluney, William Ross, ed. What You can do to Stop the Environmental Destruction of South Florida. Coral Gables: University of Miami Press, 1971 (paper).

McCuen, Gary E and David L. Bender, eds. The Ecology Controversy: Opposing Viewpoints. Anoka, Minnesota: Greenhaven Press, 1970 (paper).

III. AUDIO VISUAL MATERIALS

A. Films

Air, Water and Industry. Modern Talking Picture Service. 22 min. C (free loan).

Progress, Pork-Barrel and Pheasant Feathers. McGraw-Hill Contemporary Film Rental Offices (330 W. 42 Street, N. Y. 10036). 27 min. Rental $17.50.

Spirit of '76. American Documentary Films (336 W. 84 Street, N. Y.), Rental. (Deals with Santa Barbara oil slick, not viewed by writer).

Tom Lehrer Sings "Pollution." Public Health Service (Audio Visual Facility, Atlanta, 30333). 3 min. Free loan. (Other films about pollution available here on request.)

B. Filmstrips

Environment: Changing Man's Values. Guidance Associates. 2 filmstrips, 2 records or cassettes, discussion guide.

Man's Natural Environment Crisis Through Abuse. Guidance Associates. 2 filmstrips, 2 records or cassettes, discussion guide.

The Politics of Pollution. Environmental Ecology Series SS100. Dade County Media Department, 1971 (presently in production).

(Other media productions concerning Ecology/Social Studies (1971) are in production. Check with the Dade County Schools Department of Media)

C. Other

Dirty Water The Water Pollution Game. Cambridge: Urban Systems, Inc., 1970. (Simulation game).

Smog: The Air Pollution Game Cambridge: Urban Systems, Inc., 1970. (Stimulation game).

Environmental Survival Kit. WTVJ. Miami, 1970.

IV. STUDENT RESOURCES (SUPPLEMENTAL)

"Cleaning up the National Mess: How Great the Lost? Who will pay?" Time. February 2, 1970.

Congressional Quarterly Guide to Current American Government. Washington, D.C.: Congressional Quarterly Inc. (Updated and published twice yearly, subscription presently $6.00.)

Current History. June, 1970. (Issue devoted to Environment)

Dales, J. H. Pollution, Property and Prices. Toronto: Univ. of Toronto, 1968 (paper).

DeBell, Garrett. The Environmental Handbook. New York: Ballantine Books, 1970 (paper).

Ehrlich, Paul. The Population Bomb. New York: Ballantine Books, 1968 (paper).

Environmental Action. Washington D.C.: Environmental Action, Inc. (bi-weekly periodical; student subscription $3.00/year; easy reading).

Esposito, John. Vanishing Air (The Ralph Nader Study Group Report on Air Pollution). New York: Grossman Publishers, 1970.

Greene, M. "The Politics of Pesticides. Nation, November 24, 1969.

Goldman, Marshall. "The Convergence of Environmental Disruption." Science, 1970 : October 2, 1970, pps. 37-42.

League of Women Voters. Population + Production = Pollution. Brattleboro: Greene Co., 1966.

League of Women Voters of the United States. The Big Water Fight. Trials and Triumphs in Citizen Action on Problems of Supply, Pollution, Floods, and Planning Across the USA. Brattleboro: Greene Co., 1966.

League of Women Voters. Who Pays for a Clean Stream? Battleboro: Greene Co., 1966. (Write or call the League of Women Voters for information on other publications.)

Man's Control of the Environment. Washington D.C.: Congressional Quarterly, Inc., 1970 (paper).

Mishan, Eyra. Technology and Growth The Price we Pay. New York: Praeger, 1970.

Mitchell, J. G. et al. Ecotactics: The Sierra Club Handbook for Environment Activists. San Francisco: Pocket Books, 1970 (paper).

Harvard Social Studies Project. Our Polluted World. Columbus: American Education Publications, 1970 (paper).

Udall, Stewart. Quiet Crisis. New York: Holt, Rinehart and Winston, 1963 (paper).

U.S. Senate Committee on Public Work, subcommittee on air and water pollution. Waste Management Research and Environmental Quality Management. Washington D.C., 1968.

Wright, Jim. The Coming Water Famine. New York: Coward-McCann, 1966. (Texas representative to Congress)

V. TEACHER REFERENCES:

Baier, K. and N. Rescher, eds. Values and the Future. MacMillan, N.Y., 1969. (Concerns the impact of technological change on values in American)

"Teacher's Resource for Synopsis." Curriculum Innovations, Inc., Vol 2, No. 3. October 12, 1970. Two sections. Discussion aids and Reprints from 1970 periodicals about "Focus: Ecology- A Study of Social Conflict."

Teacher's Resource for Synopsis. Curriculum Innovations, Inc., Vol 1, No. 2. September 29, 1969. Discussion aids and Reprints from 1969 periodicals about "Focus: The Politics of Pollution."

Where have all the Flowers Gone? A Reference Guide and Sourcebook to Ecological Literature. Arrow Company. 3385 South Bannock, Englewood, Colorado, 80110. 1970. A bibliography of books, articles, films on the environment and ecology.

Kormandy, Edward. Concepts of Ecology. Englewood Cliffs: Prentice Hall, 1969.

Graham, Frank. Since Silent Spring, Fawcett (95¢).

Bureau of National Affairs. Federal Pollution Control Programs: Water, Air, and Solid Wastes. Washington, D.C. Bureau of National Affairs, 1969.

Goldman, M. Controlling Pollution, The Economics of a Cleaner America. Prentice-Hall, Englewood Cliffs, N.J. 1967 (425 pages).

Cloud, P. ed. Resources and Man. Freeman, San Francisco; 1969. (2.95 paper)

Social Education. January, 1971. Vol 35, No. 1. Whole issue devoted to "The Environmental Crisis."

Note: The bibliography of The Environment Crisis contains a useful listing of government reports, articles, etc. Many current books contain annotated lists of materials.

APPENDIX I

PRESIDENT NIXON'S MESSAGE ON THE ENVIRONMENT, 1970

On February 10, 1970, President Richard Nixon sent a message to Congress setting forth the administration's proposals for legislation on the environment. Excerpts from the message follow:

Like those in the last century who tilled a plot of land to exhaustion and then moved on to another, we in this century have too casually and too long abused our natural environment. The time has come when we can wait no longer to repair the damage already done, and to establish new criteria to guide us in the future.

The tasks that need doing require money, resolve and ingenuity--and they are too big to be done by government alone. They call for fundamentally new philosophies of land, air and water use, for stricter regulation, for expanded government action, for greater citizen involvement, and for new programs to insure that government, industry and individuals all are called on to do their share of the job and to pay their share of the cost.

Because the many aspects of environmental quality are closely interwoven, to consider each in isolation would be unwise. Therefore I am today outlining a comprehensive, 37-point program, embracing 23 major legislative proposals and 14 new measures being taken by administrative action or executive order in five major categories:

Water pollution control.
Air pollution control.
Solid waste management.
Parklands and public recreation.
Organizing for action.

We have taken action to phase out the use of DDT and other hard pesticides. We have begun to place controls on wastes from concentrated animal feed-lots. We need programs of intensified research, both public and private, to develop new methods of reducing agricultural pollution while maintaining productivity.

I have asked the Council on Environmental Quality to press forward in this area. Meanwhile, however, we have the technology and the resources to proceed now on a program of swift cleanup of pollution from the most acutely damaging sources: municipal and industrial waste.

In the four years since the Clean Waters Restoration Act of 1966 was passed, we have failed to keep our promises to ourselves: Federal appropriations for constructing municipal treatment plants have totaled only about one-third of authorizations. Municipalities themselves have faced increasing difficulty in selling bonds to finance their share of the construction costs.

I propose a clean waters act with $4 billion to be authorized immediately, for fiscal 1971, to cover the full federal share of the total $10-billion cost on a matching fund basis. This would be allocated at a rate of $1 billion a year for the next four years, with a reassessment in 1973 of needs for 1975 and subsequent years.

To insure that the new funds are well invested, five major reforms are needed. One requires legislation; the other four will be achieved by administrative action.

I propose that the present, rigid allocation formula be revised, so that special emphasis can be given to areas where facilities are most needed and where the greatest improvements in water quality will result.

Under existing authority, the Secretary of the Interior will institute four major reforms:

Federally assisted treatment plants will be required to meet prescribed design, operation and maintenance standards, and to be operated only by state-certified operators.

Municipalities receiving federal assistance in constructing plants will be required to impose reasonable users' fees on industrial users sufficient to meet the costs of treating industrial wastes.

Development of comprehensive river basin plans will be required at an early date, to insure that federally assisted treatment plants will in fact contribute to effective cleanup of entire river basin systems. Collection of existing data on pollution sources and development of effluent inventories will permit systems approaches to pollution control.

Wherever feasible, communities will be strongly encouraged to cooperate in the construction of large regional treatment facilities, which provide economies of scale and give more efficient and more thorough waste treatment.

I propose that state-federal water quality standards be amended to impose precise effluent requirements on all industrial and municipal sources. These should be imposed on an expeditious timetable, with the limit for each based on a fair allocation of the total capacity of the waterways to absorb the user's particular kind of waste without becoming polluted.

I propose that violation of established effluent requirements be considered sufficient cause for court action.

I propose that the Secretary of the Interior be allowed to proceed more swiftly in his enforcement actions, and that he be given new legal weapons including subpoena and discovery power.

I propose that failure to meet established water quality standards or implementation schedules be made subject to court-imposed fines of up to $10,000 per day.

I am inaugurating a program to marshal both government and private research with the goal of producing an unconventionally powered, virtually pollution-free automobile within five years.

I propose that the federal government establish nationwide air quality standards, with the states to prepare within one year abatement plans for meeting those standards.

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I propose that designation of interstate air quality control regions continue at an accelerated rate, to provide a framework for establishing compatible abatement plans in interstate areas.

I propose that federal authority to seek court action be extended to include both inter- and intrastate air pollution situations in which, because of local nonenforcement, air quality is below national standards, or in which emission standards or implementation timetables are being violated.

I propose that failure to meet established air quality standards or implementation schedules be made subject to court-imposed fines of up to $10,000 per day.

I have ordered a redirection of research under the Solid Waste Disposal Act to place greater emphasis on techniques for recycling materials, and on development and use of packaging and other materials which will degrade after use--that is, which will become temporary rather than permanent wastes.

I have asked the Council on Environmental Quality to take the lead in producing a recommendation for a bounty payment or other system to promote the prompt scrapping of all junk automobiles.

I propose full funding in fiscal 1971 of the $327 million available through the Land and Water Conservation Fund for additional park and recreational facilities, with increased emphasis on locations that can be easily reached by the people in crowded urban areas.

I propose that we adopt a new philosophy for the use of federally owned lands, treating them as a precious resource--like money itself--which should be made to serve the highest possible public good.

By executive order, I am directing the heads of all federal agencies and the Administrator of General Services to institute a review of all federally owned real properties that should be considered for other uses. The test will be whether a particular property's continued present use or another would better serve the public interest, considering both the agency's needs and the property's location.

The task of cleaning up our environment calls for a total mobilization by all of us. It involves governments at every level; it requires the help of every citizen. It cannot be a matter of simply sitting back and blaming someone else. Neither is it one to be left to a few hundred leaders. Rather, it presents us with one of those rare situations in which each individual everywhere has an opportunity to make a special contribution to his country as well as his community.

APPENDIX II

Environmental Organizations

(For a complete up-to-date list, write for The Conservation Directory, ($1.50) from the National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C. 20036)

The Conservation Foundation, 1250 Connecticut Avenue, N.W., Washington, D.C. 20036

The Izaak Walton League of America, 1326 Waukegan Road, Glenview, Illinois 60025

Keep America Beautiful, Inc., 99 Park Avenue, New York, New York 10016

League of Women Voters of the United States, 1730 M Street, N.W., Washington, D.C. 20036

National Audubon Society, 1130 Fifth Avenue, New York, New York 10028

National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C. 20036
(Published annually "The Conservation Directory," listing organizations, at $1.50 a copy.)

Natural Science for Youth Foundation, 763 Silvermine Road, New Canaan, Connecticut 06840

The Nature Conservancy, 1522 K Street, N.W., Washington, D.C. 20005

Sears, Roebuck Foundation, Chicago, Illinois 60607

Sierra Club, 1050 Mills Tower, San Francisco, California 94104

The Urban Coalition, 2100 M Street N.W., Washington, D.C. 20037

The Citizens League Against the Sonic Boom, 19 Appleton Street, Cambridge, Mass. 02138

Planned Parenthood-World Population, 515 Madison Ave., New York, New York 10022

Zero Population Growth, 367 State Street, Los Altos, California 94022

Environmental Defense Fund, 162 Old Town Road, East Setauket, New York 11733

Friends of the Earth, 30 E. 42nd Street, New York, New York 10017

Conservation 70s Inc., 319 S. Monroe Street, Suite 326, Tallahassee, Fla. 32304
(Devoted to problems in Florida)

John Muir Institute for Environmental Studies, 451 Pacific Avenue, San Francisco, California 94133

League of Conservation Voters, 917 15th Street, N.W., Washington, D.C. 20005

Environmental Action, 2000 P Street, N.W., Washington, D.C. 20036

The Center for Study of Responsive Law, 1908 Q Street, N.W., Washington, D.C. 20009